

WHAT IS CLAIMED IS:

1. An image forming apparatus, comprising:
  - an image bearing member on which a latent image corresponding to image information is formed;
  - 5        developing means for developing the latent image on said image bearing member with a developer including carrier and toner;
  - supplying means for supplying the developer to said developing means;
  - 10        detecting means for detecting information corresponding to a magnetic permeability of the developer; and
  - selecting means for selecting modes based on the information detected by said detecting means,
  - 15        wherein said selecting means can select a first control mode that controls an amount of developer which is supplied to said developing means by said supplying means based on the information detected by said detecting means, and a second control mode that
  - 20        controls the amount of developer which is supplied to said developing means by said supplying means based on said image information.
2. An image forming apparatus according to claim 25 1, wherein said selecting means selects the modes based on a first information detected by said detecting means and a second information detected after a period of

time from a detection of said first information by said detecting means in a state in which the amount of developer is not substantially changed.

5           3. An image forming apparatus according to claim 2, wherein if a difference between a signal value representative of said first information and a signal value representative of said second information is larger than a predetermined value, said selecting means  
10           selects said second control mode.

          4. An image forming apparatus according to claim 3, wherein said control means changes over from said second control mode to said first control mode after a  
15           predetermined period of time elapses.

          5. An image forming apparatus according to claim 3, wherein said supplying means controls the amount of developer which is supplied to said developing means  
20           based on the information detected by said detecting means and said image information after an image formation is completed in a state in which said second control mode is selected.

25           6. An image forming apparatus according to claim 5, comprising control means for controlling a ratio of an amount of developer to be supplied based on the

information detected by said detecting means to the amount of developer which is supplied to said developing means by said supplying means.

5           7. An image forming apparatus according to claim  
5, comprising control means for controlling a ratio of  
an amount of developer to be supplied based on said  
image information to the amount of developer which is  
supplied to said developing means by said supplying  
10 means.

          8. An image forming apparatus according to claim  
7, wherein said control means controls so as to reduce  
said ratio every time a predetermined number of times  
15 of the detection operation is completed by said  
detecting means.

          9. An image forming apparatus according to claim  
8, wherein said ratio becomes finally zero.

20           10. An image forming apparatus according to claim  
7, wherein said control means controls a period of time  
until said ratio becomes zero in accordance with said  
difference.

25           11. An image forming apparatus according to claim  
3, wherein a period of time between a time when said

second control mode is selected and a time when said second control mode is changed to said first control mode is varied in accordance with said difference.

5           12. An image forming apparatus according to claim 2, wherein if a difference between a signal value representative of said first information and a signal value representative of said second information is smaller than a predetermined value, said selecting  
10 means selects said first control mode.

          13. An image forming apparatus according to claim 2, further comprising memory means for storing information; wherein said memory means stores said  
15 first information.

          14. An image forming apparatus according to claim 13, wherein said memory means comprises a non-volatile memory.  
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          15. An image forming apparatus according to claim 14, wherein a main switch of a main body of the image forming apparatus turns off after said first information is detected, and said second information is  
25 detected after said main switch turns on.

          16. An image forming apparatus according to claim

1 or 2, wherein the amount of developer which is  
supplied to said developing means by said supplying  
means is controlled based on a number of video counts  
corresponding to said image information in said second  
5 control mode.

17. An image forming apparatus according to claim  
1 or 2, wherein a volume resistivity of the carrier is  
 $10^{10}$  to  $10^{14}$   $\Omega\text{cm}$ .

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18. An image forming apparatus according to claim  
1 or 2, wherein a shape factor of the toner is 100 to  
140 in SF-1 and 100 to 120 in SF-2.

15 19. An image forming apparatus, comprising:  
an image bearing member on which a latent image  
corresponding to image information is formed;  
developing means for developing the latent image  
on said image bearing member with a developer including  
20 carrier and toner;  
supplying means for supplying the developer to  
said developing means;  
detecting means for detecting information  
corresponding to a magnetic permeability of the  
25 developer; and  
control means for controlling an amount of  
developer which is supplied to said developing means by

said supplying means based on the information detected by said detecting means and said image information.

20. An image forming apparatus according to claim  
5 19, wherein said control means controls a ratio of an amount of developer to be supplied based on the information detected by said detecting means to the amount of the developer which is supplied to said developing means by said supplying means.

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21. An image forming apparatus according to claim  
19, wherein said control means controls a ratio of an amount of the developer to be supplied based on said image information to the amount of developer which is  
15 supplied to said developing means by said supplying means.

22. An image forming apparatus according to claim  
21, wherein said control means controls so as to reduce  
20 said ratio every time a predetermined number of times of the detection operation is completed by said detecting means.

23. An image forming apparatus according to claim  
25 22, wherein said ratio becomes finally zero.

24. An image forming apparatus according to claim

21, wherein said control means controls a period of time until said ratio becomes zero based on a difference between a signal value of first information detected by said detecting means and a signal value of second information detected after a period of time from a detection of said first information by said detecting means in a state in which the amount of developer is not substantially changed.

10           25. An image forming apparatus according to claim 19, wherein said control means controls the amount of developer based on a number of video counts corresponding to said image information.

15           26. An image forming apparatus according to claim 19, wherein a volume resistivity of the carrier is  $10^{10}$  to  $10^{14}$   $\Omega\text{cm}$ .

20           27. An image forming apparatus according to claim 19, wherein a shape factor of the toner is 100 to 140 in SF-1 and 100 to 120 in SF-2.